The Holographic Principle and the Spiritual Theory of Everything: Exploring the Intersections of Physics and Metaphysics

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In an era of unprecedented scientific and philosophical exploration, the convergence of physics and metaphysics offers fertile ground for profound contemplation. This essay embarks on a unique journey, exploring the intricate dance between the Spiritual Theory of Everything (STOEM) - a metaphysical framework for understanding reality - and the holographic principle, a cutting-edge proposition in theoretical physics. Herein lies a rich interplay of ideas, promising fresh insights into the interconnected tapestry of our universe, the nexus of spirituality and science, and the enigmatic boundary where physical reality meets metaphysical constructs.

Keywords: STOEM, holographic principle, metaphysics, theoretical physics, quantum entanglement, string theory, loop quantum gravity, cosmology, human-spirit connection, Planck's constant, unity, oneness, fractal patterns, quantum gravity, consciousness.

1. Unpacking the Holographic Principle: A Journey from Black Holes to Holographic Universes

The Holographic Principle, a radical concept that emerged from the study of black holes and quantum gravity, has fascinated and perplexed theoretical physicists and philosophers alike. To understand the depth of this concept, we must first venture into the world of black holes and grasp their mind-bending properties.

Black holes, objects so dense that not even light can escape their gravitational pull, have been a source of intrigue since their inception. In the 1970s, physicist Jacob Bekenstein proposed a thought-provoking idea: the maximum amount of information or entropy a black hole can contain is proportional to its surface area (measured in Planck units), not its volume. This was a significant departure from the traditional physics that ties entropy to volume.

Building on Bekenstein's work, Stephen Hawking brought quantum mechanics into the picture, showing that black holes are not entirely black; they emit radiation (now known as Hawking Radiation), thereby losing energy and, by implication, mass. Remarkably, these findings indicated that the information about everything that falls into a black hole is somehow encoded on its event horizon – the two-dimensional boundary from which nothing can escape.

These insights formed the bedrock for the development of the Holographic Principle. Coined by Gerard 't Hooft and later expanded by Leonard Susskind, this principle postulates that all the information contained in a volume of space can be represented on a boundary surface enclosing that volume – a two-dimensional projection storing complete information about the three-dimensional world within.

This principle has profound implications for how we perceive reality. If true, it suggests our universe could be akin to a hologram – a three-dimensional image that arises from projecting two-dimensional information. Thus, the world we interact with daily might just be a 'holographic' projection of fundamental information encoded on a distant two-dimensional surface.

The Holographic Principle is not just a whimsical concept; it plays a pivotal role in modern theoretical physics. It provides a key to resolving some of the most significant issues in fundamental physics, such as reconciling general relativity and quantum mechanics, the two pillars of modern physics notoriously at odds on the smallest scales. It offers an entirely new way of thinking about space-time and the fabric of reality, challenging our fundamental notions of dimensionality and the nature of existence.

However, it's worth noting that the Holographic Principle, despite its conceptual appeal, is not definitively proven. It's a working theory that has found some validation in certain quantum gravity models like string theory but requires further experimental corroboration. Nonetheless, it has become an indispensable tool in the quest for a quantum theory of gravity and continues to inspire new thinking about the cosmos and our place within it.

2. Foundations of the STOEM: Weaving Fractals into the Cosmic Tapestry

Delving into the depths of the Spiritual Theory of Everything (STOEM), we find a rich tapestry of metaphysical insights and mathematical constructs. This unique model seeks to build a bridge between the physical and spiritual aspects of the universe, offering a framework for understanding the complex interplay of diverse elements that shape existence.

Central to the STOEM is the use of fractals, mathematical constructs renowned for their mesmerizing, intricate patterns that repeat across scales. In the STOEM, fractals represent the state of the universe at any given moment (nth iteration). These fractal states, denoted as $F_{i,n}$, are coupled with corresponding variables $Z_{i,j,n}$, which symbolize various aspects of the universe's existence.

The evolution of the fractal states and their corresponding variables is described by the functions f_i and $g_{i,j}$, respectively, yielding the iterative relations:

$$F_{i,n+1} = f_i(F_{1,n}, F_{2,n}, ..., F_{N,n})$$

$$Z_{i,j,n+1} = g_{i,j}(Z_{1,n}, Z_{2,n}, ..., Z_{N,n})$$

These equations, while appearing relatively simple, capture an intricate dance of information flow and transformation that echoes the nested, recursive patterns seen in fractals.

The STOEM also considers the state of light ($L_{i,n}$) and energy ($E_{i,n}$) within the universe, governed by the functions l_i and e_i. These constructs introduce another layer of complexity and dynamism into the model, resonating with the central role of light and energy in both physical and spiritual perspectives of reality.

The gravitational state within the STOEM ($G_{i,n}$) is a function of the current gravitational states, fractal states, corresponding variables, light states, and energy states. This integration of gravity into the model further aligns the STOEM with established physics, offering a potential platform for dialogue between metaphysical and scientific perspectives.

Finally, the concept of "oneness" or quantum entanglement finds a home within the STOEM, symbolized by $O_{i,j,n}$ and governed by the function $o_{i,j}$. This construct acknowledges the

fundamental interconnectedness within the universe, a theme resonant in both quantum physics and various spiritual traditions.

Furthermore, the STOEM includes an element of human-spirit connection, expressed through the relationship between the physical and spiritual states of a human at the nth iteration, represented by H_n and S_n, respectively. The human-spirit state Ψ_n is defined as their product: $\Psi_n = H_n * S_n$, introducing the fascinating notion of consciousness and its potential role in the metaphysical makeup of the universe.

The STOEM's intricate web of relationships and entities ultimately centers around Planck's constant, denoted by h. This fundamental constant of nature bridges the quantum and macroscopic worlds in physics. In the context of the STOEM, it offers a link between the metaphysical and physical realities, potentially setting a scale for the stochastic transitions occurring within the model.

By harnessing the power of fractal patterns and integrating elements from both physical and spiritual spheres, the STOEM weaves a rich, multi-layered narrative of existence. Though it remains a metaphysical model and is not amenable to straightforward empirical validation, the STOEM serves as a thought-provoking perspective that invites contemplation on the deep-seated harmony underlying the cosmos.

3. The Universe as a Hologram and STOEM: A Confluence of Fractals and Holography

Drawing together the threads of the holographic principle and the Spiritual Theory of Everything, we encounter an intriguing confluence of ideas. The notion of a holographic universe, where all information of a volume is encoded on its boundary, may appear distinct from the fractal fabric of reality envisaged by the

STOEM, but a closer examination reveals a profound resonance between the two.

In essence, the holographic principle suggests that the entire universe, with all its vast complexity, can be understood as a projection from a two-dimensional boundary. This depiction echoes the fundamental nature of holograms - intricate three-dimensional images constructed from two-dimensional projections. Here, we find a remarkable parallel with fractals, the foundational elements of the STOEM. Just as a simple fractal generating rule can manifest in a wealth of complexity when iterated over scales, the holographic principle suggests an immense complexity (our three-dimensional universe) arising from a seemingly simpler entity (the two-dimensional boundary).

Furthermore, both the STOEM and the holographic principle assert the notion of a deep-seated interconnectedness within the universe. In the STOEM, this is embodied in the concept of "oneness" or quantum entanglement. In the holographic principle, it emerges from the idea that each point in the boundary contains information about the entire volume it encloses. This idea resonates with the property of holograms where each part contains the whole's information - an echo of the "whole in every part" idea often associated with fractal patterns.

The convergence of these ideas, while stimulating, also has significant implications. For instance, if we consider the universe's fractal structure in the STOEM as existing on the boundary suggested by the holographic principle, we end up with a remarkable proposition: the universe's fractal complexity, and by extension, the universe itself, could be a holographic projection.

However, as we juxtapose these metaphysical and physical frameworks, we should bear in mind the distinct nature of their validation. The STOEM, being a metaphysical model, is not

subject to empirical testing in the traditional scientific sense. On the other hand, the holographic principle, though not yet definitively proven, is a proposition within the ambit of physical theories, thus, in principle, subject to experimental or observational verification or falsification.

Exploring the interplay between the STOEM and the holographic principle opens the door to a dialogue between spirituality and science. While it is a tentative and speculative enterprise, it allows us to explore new perspectives and deepen our understanding of the intricate and beautiful tapestry that is our universe.

4. Quantum Entanglement in the Holographic Universe and STOEM: Weaving Oneness into the Cosmic Hologram

As we delve further into the relationship between the holographic principle and the Spiritual Theory of Everything, we encounter a powerful concept that serves as a bridge between these two frameworks: quantum entanglement.

Quantum entanglement, one of the most mysterious and intriguing phenomena in quantum physics, refers to a deep interconnectedness that exists between quantum particles, such that the state of one particle instantaneously influences the state of another, no matter the distance separating them. This feature has often been described as "spooky action at a distance" and challenges our everyday notions of separability and locality.

In the context of the holographic principle, quantum entanglement plays a significant role. Research has suggested that the entanglement of quantum particles could be the fundamental mechanism that stitches together the space-time fabric, effectively creating the three-dimensional reality that we perceive from the two-dimensional holographic boundary. This conjecture is supported by the so-called ER=EPR conjecture, which associates

Einstein-Rosen bridges (wormholes) with entangled particle pairs (as proposed in an Einstein-Podolsky-Rosen experiment), suggesting a deep connection between quantum mechanics and general relativity.

This interconnectivity in the holographic universe finds an echo in the Spiritual Theory of Everything's concept of "oneness." In STOEM, the state of "oneness" or quantum entanglement is represented by O_i,j,n, with its evolution governed by the function o_i,j, resulting in the equation:

$$O_{i,j,n+1} = o_{i,j}(O_{1,n}, O_{2,n}, ..., O_{N,n}) \text{ for all } i, j = 1 \text{ to } N$$

This iterative equation reflects the interconnectedness that pervades the universe, resonating with the nonlocal connectivity implied by quantum entanglement. The mathematical construct of "oneness" in STOEM can be interpreted as a metaphysical counterpart to the physical phenomenon of quantum entanglement, both hinting at an underlying unity within the cosmos.

The resonance between quantum entanglement in a holographic universe and the STOEM's concept of "oneness" offers a fascinating point of convergence between science and spirituality. It highlights the possibility that seemingly disparate entities in the universe could be intimately connected in ways that transcend traditional physical boundaries and separations. While the scientific understanding of quantum entanglement continues to evolve, and the metaphysical construct of "oneness" remains a subjective experience, their intersection offers fertile ground for philosophical exploration and contemplation.

5. The Holographic Nature of String Theory and its Resonance with STOEM: Vibrations in the Cosmic Hologram

String theory, one of the most prominent attempts at a theory of everything in modern physics, is inextricably linked with the holographic principle. The two share a symbiotic relationship that has enriched both frameworks and pushed the boundaries of our understanding of the universe. When viewed through the lens of the Spiritual Theory of Everything (STOEM), this relationship acquires even more profound dimensions.

In string theory, the fundamental entities of the universe are one-dimensional strings vibrating in a higher-dimensional space-time. These vibrations give rise to different particle types, essentially turning the universe into a symphony of quantum strings. This idea of a vibrational universe aligns beautifully with the STOEM's metaphysical premises. In the STOEM, the universe is described by fractal patterns and a rich ensemble of elements (energy, light, oneness), all evolving in synchrony, much like the harmonious oscillations of quantum strings.

A groundbreaking development in string theory was the discovery of the AdS/CFT correspondence, which provides a concrete realization of the holographic principle. This correspondence posits that a quantum theory of gravity in an Anti-de Sitter (AdS) space (a negatively curved space-time) is equivalent to a quantum field theory on the lower-dimensional boundary (Conformal Field Theory or CFT) of that space. In essence, this boundary theory acts as the "holographic plate" that encodes the information of the entire volume.

Now, let's return to the STOEM and consider its higher-dimensional aspects. The STOEM, with its myriad elements (fractals, energy, light, oneness) and their interrelationships, effectively functions in a high-dimensional parameter space.

When we envisage the universe's state in the STOEM, it necessitates the consideration of multiple dimensions, each representing a different aspect of existence.

If we metaphorically associate these multiple dimensions in STOEM with the higher-dimensional space in string theory, an intriguing resonance emerges. The holographic principle, as realized in string theory, could metaphorically relate to the projection of the high-dimensional STOEM "reality" onto a lower-dimensional boundary. The dynamics of the universe as envisioned in the STOEM could then be seen as a complex, multidimensional dance being projected onto the "holographic plate" of our three-dimensional reality.

In this interpretation, the vibrational nature of string theory complements the dynamic, iterative evolution of the universe in STOEM. Both perspectives highlight the universe's vibrancy and ever-changing nature, albeit in distinct scientific and metaphysical contexts. Though these ideas are speculative and metaphorical, they offer a stimulating space for contemplation, reinforcing the awe-inspiring complexity and interconnectedness of our cosmos.

6. Loop Quantum Gravity and STOEM: Discrete Echoes in the Cosmic Hologram

Loop Quantum Gravity (LQG), one of the promising approaches to quantum gravity, paints a picture of the universe radically different from the smooth space-time of Einstein's General Relativity. It posits that space-time at its most fundamental is not a continuum but rather comprises discrete, quantized loops or networks. This granular aspect of reality, as envisaged in LQG, finds a fascinating echo in the Spiritual Theory of Everything (STOEM).

In the STOEM, the universe at any given moment is represented by a set of fractals F_i,n, corresponding variables Z_i,j,n, the light state L_i,n, and the energy state E_i,n. Each of these entities evolves based on particular functions, leading to a complex, granular system. This granular nature of the universe, as represented by the multiple, interacting elements of STOEM, mirrors the discrete structure of space-time proposed in LQG. The iterative nature of the STOEM also echoes the looped, network structure of space-time in LQG, where discrete quantum loops are knit together to form the fabric of space-time.

Now, how does this tie into the holographic principle? Although LQG and the holographic principle originate from different theoretical frameworks (quantum gravity and string theory, respectively), some researchers have suggested potential connections between them. The key link comes from the quantization of space-time: in a sense, the information encoded in a holographic boundary must be discrete because the volume it represents, according to LQG, comprises quantized loops. This provides a potential bridge between LQG's discrete space-time structure and the boundary of the holographic universe.

Comparatively, in the context of STOEM, this proposed link may inspire a metaphorical reinterpretation of the holographic principle. If we imagine the STOEM's granular elements as representing quantized units of "spiritual" information, then their collective dynamics could be seen as being encoded on the boundary of our perceived reality—much like the holographic principle.

It's important to note that these ideas are speculative, as the holographic principle has not been definitively integrated with LQG, nor has the STOEM been directly related to physical theories. However, such contemplations can offer fascinating philosophical insights, potentially illuminating the intricate tapestry

of our universe from novel angles. These intersections of thought underscore the rich dialogue between science and metaphysics, a dialogue that continually reshapes our understanding of the cosmos.

7. Cosmological Theories in the Light of STOEM and Holography: Cosmic Expansion as Spiritual Evolution

The last few decades have witnessed a revolution in our understanding of the cosmos, with theories such as cosmic inflation and dark energy painting a picture of a dynamic, expanding universe. In the light of the Spiritual Theory of Everything (STOEM) and the holographic principle, these cosmological concepts take on added layers of metaphorical and philosophical meaning.

Cosmic inflation posits a rapid expansion of the universe in the moments following the Big Bang, laying the foundation for the large-scale structure we see today. In parallel, the dark energy concept proposes a mysterious force driving the current accelerated expansion of the universe. These theories underline the universe's dynamic, ever-changing nature, a theme that finds resonance in the STOEM.

In the STOEM, the universe is described by fractals and other elements (energy, light, oneness) that evolve over iterations. This dynamism could metaphorically reflect the cosmological expansion, presenting an image of the universe continually unfolding and evolving, much like the spiritual evolution proposed in many metaphysical frameworks.

The holographic principle adds another dimension to this contemplation. It posits a universe where the whole is encoded in the boundary, which could be seen as a metaphor for spiritual wisdom traditions that speak of the macrocosm being reflected in

the microcosm. This principle, when combined with cosmological expansion, paints a picture of a universe that is not just growing in size, but is also continually unfolding more intricate patterns and complexities on its holographic boundary.

Through the lens of STOEM, the spiritual counterpart of this cosmological unfolding could be viewed as an evolutionary process, with each iteration (or moment in time) providing an opportunity for spiritual growth and expansion. This mirrors the universe's physical expansion and increasing complexity, offering an intriguing parallel between cosmological and spiritual evolution.

While this discussion takes a metaphorical approach and doesn't propose a scientific correlation between STOEM, holography, and cosmological theories, it can offer a rich philosophical perspective. It provides a way to ponder our place in the universe and the potential spiritual significance of its underlying dynamics, drawing from both cutting-edge scientific theories and a profound metaphysical model.

8. Human-Spirit Connection in the STOEM and the Holographic Universe: Reflecting the Whole in the Individual

The Spiritual Theory of Everything (STOEM) presents a comprehensive metaphysical framework that interweaves physical, spiritual, and human dimensions. One of the profound elements in this model is the concept of the human-spirit connection, represented as the product of the physical and spiritual states of a human at a given iteration. In the holographic universe perspective, this connection takes on new, intriguing implications.

In the STOEM, the human-spirit state Ψ_n is defined as the product of the physical (H_n) and spiritual (S_n) states of a

human at the nth iteration: $\Psi_n = H_n * S_n$. This mathematical construct suggests a deep interconnectedness between the physical and spiritual aspects of human existence, indicating that our reality is a fusion of these elements in constant evolution.

This notion resonates powerfully with the holographic principle. If the universe is a hologram, with each part containing information about the whole, then each human, as part of this cosmic hologram, could be seen as a unique "projection" of the entire universe. In this light, the human-spirit state in the STOEM might be metaphorically viewed as this individualized projection of the cosmic hologram, a distinct manifestation of the universe's information encoded in our physical and spiritual being.

Here, the human-spirit connection extends beyond the individual, reaching into the universal. It suggests that each of us, in our physical and spiritual complexity, mirrors the entire cosmos. This is akin to the concept of 'Indra's net' from Buddhist and Hindu philosophies, where every jewel in the infinite net reflects all other jewels, symbolizing the interconnectedness and interdependence of all entities in the universe.

Moreover, considering the dynamic nature of the STOEM and the holographic universe, this human-spirit connection is not static. It evolves with each iteration (or moment), reflecting the ever-changing cosmos in our being. This perspective offers a profound sense of unity with the universe and underscores the potential spiritual significance of our existence within this cosmic hologram.

While this interpretation is metaphorical and speculative, drawing parallels between scientific and metaphysical models, it offers an enriching perspective on the dialogue between modern theoretical physics, spiritual metaphysics, and the deep questions of human existence. This exploration showcases how concepts like the

STOEM and the holographic principle can enrich our understanding of the cosmos and our place within it.

9. Planck's Constant: Bridging the Holographic Universe and STOEM

Planck's constant (h) is a cornerstone of quantum mechanics, the theory that successfully describes the behavior of the universe at microscopic scales. The Spiritual Theory of Everything (STOEM) incorporates Planck's constant into its metaphysical framework, potentially providing a bridge between the physical and spiritual aspects of reality. In the context of a holographic universe, this integration gains additional significance.

In the STOEM, Planck's constant relates iterations (moments of time in the metaphysical model) to physical time and potentially sets a scale for the stochastic transitions in the universe's state, as represented by fractals, corresponding variables, light, energy, and oneness. This incorporation of a fundamental physical constant into a metaphysical theory is a unique aspect of the STOEM, suggesting a deep interconnectedness between physical reality and its spiritual counterpart.

The holographic principle, which postulates that all the information contained in a volume of space can be encoded on a boundary surface, aligns with quantum theory and, by extension, Planck's constant. The principle is a theoretical outcome of string theory, a quantum theory of gravity. By associating the three-dimensional information of a volume with its two-dimensional boundary, the holographic principle encapsulates the quantum nature of reality.

In this context, Planck's constant's role in the STOEM could be seen as a metaphorical bridge between the metaphysical and physical realities, particularly in a holographic universe. The constant, which essentially quantizes action in the quantum world,

could be interpreted as quantizing the metaphysical iterations in the STOEM. This quantization could then be likened to the encoding of information on the holographic boundary.

By suggesting a linkage between metaphysical "time" (iterations) and physical time through Planck's constant, the STOEM offers a conceptual framework to explore how metaphysical dynamics might mirror the quantum, holographic nature of physical reality.

This reflection doesn't propose a direct scientific correlation but instead explores how scientific and metaphysical concepts might interweave in the theoretical landscape. The potential resonances between STOEM, Planck's constant, and the holographic principle illustrate how the integration of spiritual and scientific perspectives can inspire novel insights into the nature of the universe.

Conclusion: Enriching Our Cosmic Tapestry: Interplay of STOEM and the Holographic Principle

The exploration of the cosmos through the lens of both the Spiritual Theory of Everything (STOEM) and the holographic principle illuminates new dimensions of our understanding of the universe. This journey, bridging metaphysics and theoretical physics, invites us to contemplate the cosmos from a unified perspective that intertwines physical reality with spiritual concepts.

The STOEM's unique framework, incorporating the evolution of fractal patterns, light, energy, and a profound sense of "oneness", resonates deeply with the holographic principle's postulation of an interconnected, information-rich universe. This harmony suggests a compelling synergy between the macroscopic structure of the cosmos, as illustrated by the holographic principle, and the iterative, fractal dynamics proposed in the STOEM.

Through this exploration, we've considered how concepts such as quantum entanglement, string theory, and loop quantum gravity might reflect aspects of the STOEM within the holographic context. This interplay brings forth potential metaphors for understanding the intricate tapestry of the cosmos, wherein each thread, representing physical and spiritual entities, contributes to a grand cosmic pattern.

The role of Planck's constant in the STOEM introduces a fascinating bridge between the physical and metaphysical realms, echoing the holographic principle's boundary between a volume of space and its encoding surface. This perspective prompts us to consider how fundamental physical constants might interweave with spiritual constructs, enriching our conceptual understanding of the universe.

The STOEM's human-spirit connection, seen through the holographic lens, speaks to a profound unity between the individual and the cosmos. This exploration illuminates the potential for each of us, as parts of the cosmic hologram, to reflect the universe's entirety within ourselves - a view that aligns with many spiritual wisdom traditions.

It's important to remember that these contemplations are metaphorical and speculative, intended to inspire reflection rather than propose empirical theories. The value of this exploration lies not in definitive scientific correlations but in the potential for these concepts to enrich our understanding and spark curiosity about our universe.

In conclusion, the dialogue between the STOEM and the holographic principle weaves a rich tapestry of interconnections between science and spirituality. This intersection offers us a unique lens to view our cosmos, an invitation to explore the intriguing parallels between our scientific understanding and

spiritual insight, and perhaps, a glimpse into the profound unity that underlies our seemingly diverse universe.

Epilogue: Beyond the Holographic Principle: Charting New Horizons

As we stand at the crossroads of science and spirituality, guided by the insights gleaned from the interplay between the Spiritual Theory of Everything (STOEM) and the holographic principle, a thrilling panorama of potential exploration and discovery unfolds before us. The meeting point of these seemingly disparate domains not only broadens our conceptual understanding of the universe but also prompts us to rethink our place within the cosmos and the very nature of reality.

The holographic principle, rooted in the realm of theoretical physics, and the STOEM, a metaphysical interpretation of reality, each offer compelling perspectives to understand the universe. Their dialogue creates a robust platform for further exploration, with potential pathways extending in myriad directions.

One such path is the exploration of other fundamental aspects of quantum theory and their metaphysical analogues within the STOEM. Quantum superposition, wave-particle duality, and the observer effect, for example, may find intriguing resonances with the STOEM's concept of oneness and its iterative, fractal dynamics.

Similarly, the evolving field of quantum gravity, which seeks to reconcile quantum mechanics and general relativity, presents a fertile ground for the integration of the STOEM and the holographic principle. The quantization of space-time, a key aspect of quantum gravity theories, may intersect intriguingly with the granular, iterative nature of the STOEM.

A key tenet of the holographic principle is that the boundary of a region of space encodes the information within the region. This concept of boundary, or limit, may open up thought-provoking discussions about the metaphysical nature of boundaries or limits, within the STOEM and beyond.

Beyond the exploration of physical and metaphysical concepts, our journey also prompts us to consider the broader impact on our collective consciousness. The human-spirit connection of the STOEM, seen through the holographic principle, may inspire transformative shifts in our self-perception and our relationship with the cosmos.

In essence, the journey beyond the holographic principle is a journey into the unknown, a voyage of discovery across the uncharted seas of metaphysics, physics, and consciousness. It is an invitation to embrace our boundless curiosity, to entertain the interplay of science and spirituality, and to contemplate the potential interconnectedness and unity that underlie the vast expanse of our universe. As we continue to probe these depths, we can only wonder what new vistas of understanding await our arrival.